

AMENDMENT TO THE SPECIFICATION

Please replace paragraph 4 with the following rewritten paragraph:

Figure 1 shows two adjacent cells of such a prior device in cross-section. The device of Figure 1 comprises an N^+ substrate 10 which has an N^- epitaxially deposited drift region 10a and base region 11. A high concentration source region diffusion 12 is formed on the top of epitaxial region 11. The side walls of each of trenches 13 are lined with a gate oxide 14, a bottom oxide TBO 15, and top isolation oxide tox, iso 16. A top source contact 20 contacts N^+ source region 12 and a bottom drain contact 21 contacts the bottom of N^+ substrate 10. Conductive P type polysilicon gates 30 fill the oxide lined trenches 13 and 14 respectively.

Please replace paragraph 5 with the following rewritten paragraph:

On state conduction in the device of Figure 1 takes place through the accumulated channel region along the silicon mesa walls within N^- channel region 11 which are lined with the gate oxide 13 14. The device is turned off by shorting the P type gates 30 to the source contact, which depletes out the N^- channel region 11. Further, during blocking most of the charge in the N^- drift region 10a is coupled to the gate so that C_{oss} is almost identical to C_{rss} .

Please replace paragraph 22 with the following rewritten paragraph:

Figures 3 and 4 show the use of aluminum layers 50 as the Schottky forming barrier. Other Schottky barrier layer segments could be used. The opening 40 through the $N^- N^+$ layer 12 may have any desired geometry, and such openings may be distributed over at least a major portion of the area of the N^+ source region 12 as shown in Figure 3.

Please replace paragraph 25 with the following rewritten paragraph:

A preferred method for forming the P type gate polysilicon includes the process steps of etching trenches 13 (and 16 60) and thereafter depositing a thin layer of polysilicon over the walls of trench 13. Thereafter, the deposited polysilicon receives a heavy boron implant. The remainder of the trench is then filled with undoped polysilicon and the boron implant is then

activated, distributing the P charge throughout the polysilicon filler.

Please replace paragraph 28 with the following rewritten paragraph:

Figure 5 is a metal-semiconductor band diagram for an ideal Schottky diode to explain the operation of the device of Figures 2, 3 and 4. The diagram shows that holes will be collected from the N N^- base 11 to the metal 20. That is, holes will be collected from the N N^- base 11 to the Schottky metal 20 but will not be injected from the Schottky metal 20 to the base 11, thereby retaining the feature of no minority carrier (hole) injection into the N^- base region 11.

Please replace paragraph 29 with the following rewritten paragraph:

Figure 6 shows a further embodiment of the device of Figure 3 in which gates ~~13 and 14~~ 30 are separately controlled from terminals G1 and G2, rather than being simultaneously energized as in Figures 1, 2, 3 and 4. The separation of the gates enables V_{th} control while retaining the benefit of the integrated Schottky diode.

Please replace paragraph 31 with the following rewritten paragraph:

Figure 7 is a cross-section of a cell of a device in which the source ~~an~~ and drain of Figures 2 and 3 are reversed and in which the two-gate structure of Figure 6 is employed.